Regression analysis between floristic and palynological diversity showed similar R squared in both regions (0.5-0.6). Following Odgaard (1999) we tested whether the pollen productivity is a main bias influencing the palynological diversity. We calculated relative pollen productivity from the same pollen-vegetation dataset and found substantial differences in relative pollen productivity (eg. Poaceae 1, *Quercus* 1.5, *Picea* 2.1, *Betula* 2.5, *Alnus* 3.1). We divided pollen counts of the main dominants by those values and also rarefied pollen counts to equal pollen sum. We found that pollen productivity calculated from the same pollen-vegetation dataset did not improve the diversity relationship.

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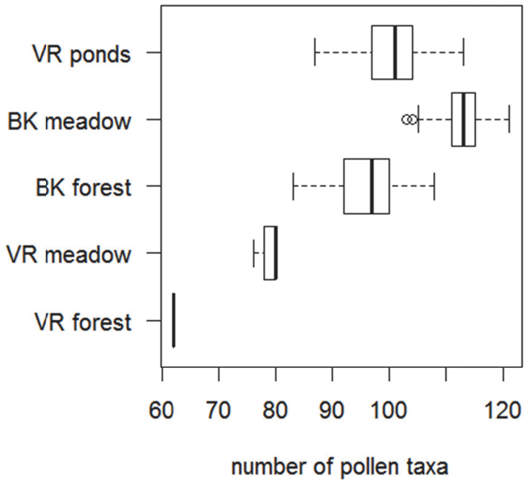

Fig. 2. Boxplot showing number of pollen taxa recorded in different regions/habitats (BK - White Carpathians, VR - Bohemian-Moravian Highland). Graphs show pollen diversity at 10 sites randomly selected in each habitat

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NEW DATA ON THE QUATERNARY SEDIMENTS' STRUCTURE OF THE PETROZAVODSKAYA BAY OBTAINED WITH RESULTS OF THE SEISMIC PROFILING

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The data about quaternary deposits of the Petrozavodskay bay was recieved during the expedition on the Onega lake in 2016. These researches were provided by Marine Research Center of Moscow State University, Saint-Petersburg State University and Northern Water Problems Institute of Karelian Research Center of RAS. The works included: seismic profiling, geological sampling and side-scan sonar. High-frequency electrodynamic source of radiation "Boomer" and low-frequency electrosparking source of radiation "Sparker" were used in seismic profiling. At last, 70 km of seismic profiles were recieved. The profiles form the polygon, 8 km at length and 2,5 km at width. For this report longitudinal profile NS_GP_S_09 and transverse GP_P_03 were chosen (fig.1). They were analyzed and interpreted in software Kingdom IHS.

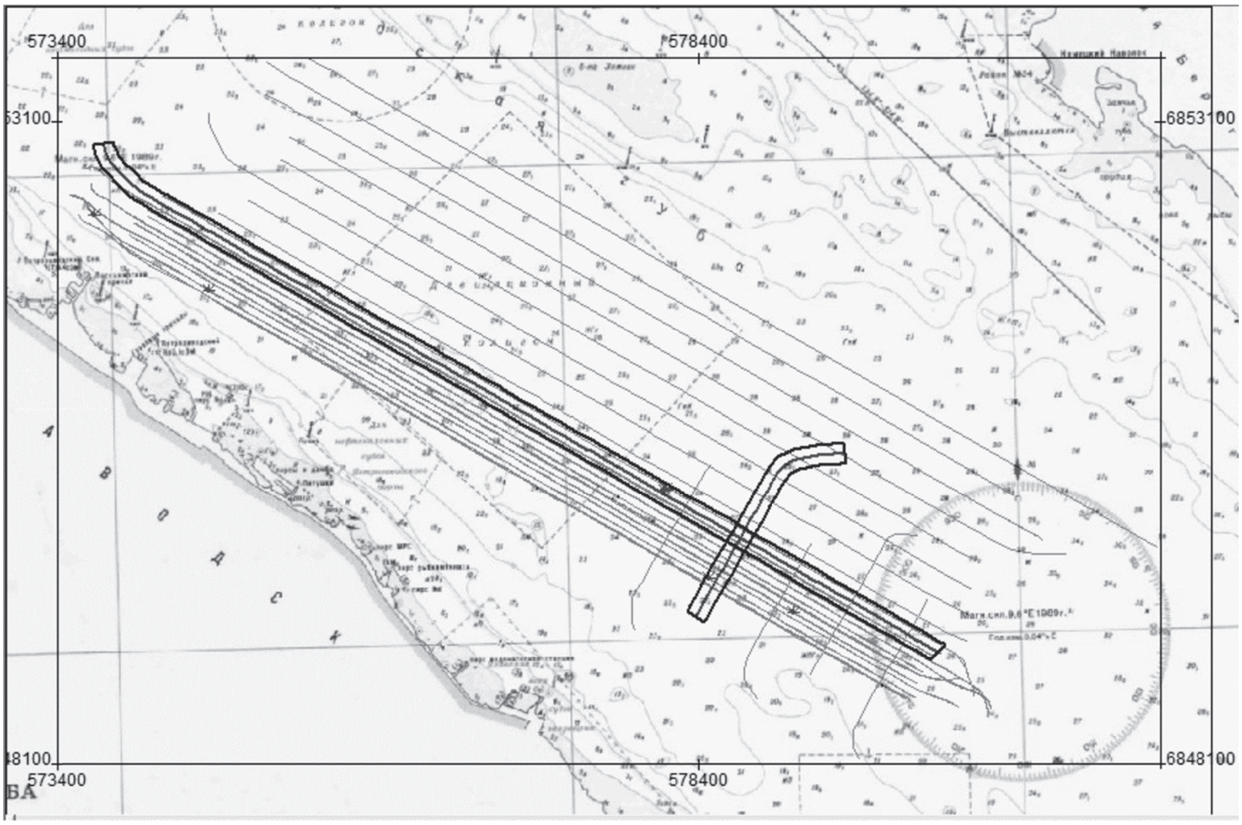

Fig. 1. The scheme of the polygon with chosen profiles

Profile NS_GP_S_09 extends in north-east direction, has length about 7,7 km. On the base of previous researches (Demidov, Lavrova, 2010; Saarnisto, Saarinen 2001; Semenovich, 1973; Subetto, 1990) and results of the geological sampling from the expedition, described above, a few layers were marked.

At the base of the section stratum with chaotic recording is layed. At some places, mild lamination can be observed. The contact with layer above is rough and well-marked. This could tell us about glacial origination of these sediments and so, they can be interpreted as late Pleistocene moraine (gIIIost).

The next layer has subhorizontal lamination. Its thickness is about 5,5-10 metres. The lays have different thickness. According to the previous researches, the deposits could be suggested as lymnoglacial varved clays of the late Pleistocene ($lgIII_1$). The lamination disappears sometimes. That could be explained with existence of fluvioglacial sediments there (fgIII). The boundary with the layers above is clear, well-marked.

Then layer with subhorizontal lamination can be observed. According to record features, these sediments have more homogenic structure than sediments below. Specific point of the layer is lamination details' decrease to the top of deposits. This one can tell about transgressive accumulation of the stratum. Somewhere, the layer disappears. The thickness can reach the point of 4,5-5 metres. These sediments are also the late Pleistocene lymnoglacial varved clays ($lgIII_2$). The contact with higher sediments is badly determined.

The next stratum has low-observed laminated subhorizontal structure. With increase of the thickness, the lamination is getting more determined. This is the thickest layer of the profile with the maximum thickness about 15 m. These deposites are presented as aleurites of the early-middle Holocene (lnH_1). The stratum is dicordantly bedded on the varved clays. The contact with next layer is well-marked, but with growth of thickness, it becomes more gradual.

The last stratum is presented as modern silt (lnH_2). The texture is homogenic, but at the top lamination can be spotted. Record features can tell about more clastic grain-size distribution. The maximal thickness of these sediments is about 8 m.

To describe the profile, it was divided into 4 parts. The first one is sector of modern accumulation. The second part is characterized with minimal accumulation of sediments. On the third part the most expressive form of topography can be watched – the esker formed with fluvioglacial sediments. In fact, it consists of two parallel ridges, connected with each other. It has north-north-west direction, its length is about 1,2 km, width – about 0,6 km. Height above the bottom is about 10 m, thickness of deposits is about 35 m. The last part is also characterized with modern accumulation. All these parts contain sights of gas formations. Some of them show on the surface, forming pok-marks. There are also a lot of neotectonic movements' signs. We can observe plenty of disjunctive dislocations, which presented as faults of deposits.

Combining all information above we can tell that observed deposits exist on the whole profile except the location of esker. Somewhere the holocene sediments almost disappear. Generally, they are laid subhorizontally on the late Pleistocene formations. The varved clays have disordant bedding, they folded into many dislocations. The surface line is flat, the depth is fluctuating about 25-28 m. The sights of erosion are insignificant. Specific feature of the surface is increase of depth to the south-east direction.

Profile GP_P_03 is high frequency profile, which has less depth of the signal, that's why the glacial deposits can't be observed. The rest of layers are presented here. Minimal thickness of sediments is above 12-13 m, maximal – 16-17 m. Depth amplitudes are about 7 metres. Depth is increasing to the north-east with flat terraces. At all, there are 3 such terraces, which can be connected with increasing of water level. There are also signs of neotectonic movements shown as plicative and disjunctive movements. Some pok-marks are displayed, by the way gas formations are located throughout the profile.

So, observing these profiles, there were some results recieved. The polygon is presented as wavy lake plain with some low ridges, formed with late-Holocene lacustrine silts. At the base of quaternary deposits late-Pleistocene moraine of last glaciation is located. The rest of section is formed with late-Pleistocene lymnoglacial varved clays and Holocene lacustrine aleurites. Also fluvioglacial esker can be observed. Generally there is accumulation on the polygon, although signs of erosion are also watched. Concerning endogennic processes, in the late Pleistocene this territory was affected by intensive neotectonic movements of upward direction, which connected with glacio-isostasy effect. Between Pleistocene and Holocene there was a break of accumulation. In Holocene tectonic movements became downward with less intensity.

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